(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 November 2005 (10.11.2005)

PCT

(10) International Publication Number
WO 2005/105816 A1

(51) International Patent Classification[7]: C07F 5/02

(21) International Application Number:
PCT/US2004/010145

(22) International Filing Date: 1 April 2004 (01.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant *(for all designated States except US)*: **ALBEMARLE CORPORATION** [US/US]; 451 Florida Street, Baton Rouge, LA 70801 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **LEE, John, Y.** [US/US]; 1524 Stoneleigh Drive, Baton Rouge, LA 70808 (US). **MATHUR, Rajeev, S.** [US/US]; 10621 Fernbrook Avenue, Baton Rouge, LA 70809 (US).

(74) Agents: **HOEFLING, Marcy, M.** et al.; Albemarle Corporation, Law Department, 451 Florida Street, Baton Rouge, LA 70801-1765 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*
— *of inventorship (Rule 4.17(iv)) for US only*

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/105816 A1

(54) Title: PROCESS FOR PRODUCING TETRAKIS (FLUOROARYL) BORATE-SALTS

(57) Abstract: This invention provides a process for producing a protic ammonium tetrakis(^{F}aryl)borate. The process comprises mixing together (a) at least one alkali metal tetrakis(^{F}aryl)borate, at least one magnesium tetrakis(^{F}aryl)borate, at least one halomagnesium tetrakis(^{F}aryl)borate, or a mixture of two or more of the foregoing, (b) at least one amine, and (c) one or more liquid dihydrocarbyl ethers, one or more liquid hydrocarbons, one or more liquid halogenated hydrocarbons, or a mixture of two or more of the foregoing, to form a solution or slurry in a liquid organic medium. At least one protic acid is mixed together with at least a portion of the solution or slurry formed in i), such that a protic ammonium tetrakis(^{F}aryl)borate is formed. The amine has the formula R_3N, in which each R is independently a hydrocarbyl group containing up to about thirty carbon atoms. Each of the ^{F}aryl groups is a fluorine-containing aryl group that has bonded directly to an aromatic ring at least two fluorine atoms, or at least two perfluorohydrocarbyl groups, or at least one fluorine atom and at least one perfluorohydrocarbyl group.